

# PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference PV/427/PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/SK 03/00020	International filing date (day/month/year) 04.11.2003	Priority date (day/month/year) 08.11.2002
International Patent Classification (IPC) or both national classification and IPC C07D209/88		
Applicant ZENTIVA A.S. et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
  - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of    sheets.

- This report contains indications relating to the following items:
  - I    ☒ Basis of the opinion
  - II   ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV   ☐ Lack of unity of invention
  - V    ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI   ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  01.06.2004	Date of completion of this report  15.11.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized Officer  Hass, C  Telephone No. +49 30 25901-340



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/SK 03/00020

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-6 as originally filed

**Claims, Numbers**

1-7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-7
	No: Claims	-
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	-
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	-

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**V.1 Cited documents**

D1: US-A-4503067  
D2: EP-A-0127099  
D3: WO-A-0200216  
D4: EP-A-0918055

**V.2 Novelty**

The subject-matter of claims 1-7 is novel with regard to D1-D4 since none of the documents mentioned that the starting material 2-(2-methoxyphenoxy)-ethylamine be used in its salt form.

**V.3 Inventive step**

According to the description, the problem underlying the application is the provision of a further process for the preparation of carvedilol which overcomes disadvantages of the prior art processes.

The processes disclosed in D1 to D3 start from 4-(oxirane-2-ylmethoxy)-9H-carbazole and 2-(2-methoxyphenoxy)-ethylamine (free base), in D4, the amine derivative is first benzylated and then deprotected. The applicant states that both the amine base and its N-benzylated derivative have low stability, they are subject to decomposition in contact with air and light.

The present process makes use of the amine in salt form which is more stable than the forms of the amine used in D1 to D3 (free base) and D4 (N-benzylated form).

This measure is not mentioned in any of the cited documents, and it could not be deduced from these documents by a person skilled in the art. The subject-matter of the claims on file is thus unobvious over the prior art.

Consequently, the presence of an inventive step is acknowledged for the subject-matter of claims 1-7.

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**V.4 Industrial applicability**

The subject-matter of claims 1-7 is considered to be industrially applicable.